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Center for Environmentally Threatened Communities Newsletter

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Usteq: When Three Threats Become One



A block of ice-rich permafrost collapses along Drew Point, Alaska – a dramatic example of usteq. Source: U.S. Geologic Survey

As part of the Arctic, Alaska is [warming faster than any other state in the country](#) and is already facing serious impacts associated with a changing climate. For many communities in Alaska, increased erosion, flooding, and permafrost degradation threaten infrastructure, livelihoods, and a way of life.



Source: Alaska Statewide Hazard Mitigation Plan

Permafrost, which is found to some extent beneath nearly [80 percent of Alaska](#), provides a stable foundation for infrastructure as long as the temperature of the ground is below freezing. When permafrost thaws, land can subside, causing damage to the infrastructure above. The higher the ice content of the permafrost, the more the ground collapses when the ice melts. What can cause ice to melt especially quickly? Answer: water, the enemy of ice. What happens when ice-rich permafrost is impacted by warming temperatures, coastal or riverine erosion, and flooding? Answer: *usteq*.

Usteq is from the Yup'ik word meaning “surface caves in.” It was coined to describe the compounding influences of thawing permafrost, flooding, and erosion. During *usteq*, permafrost thaw that was previously a slow, developing hazard becomes a rapid, high-consequence hazard. The ground caves in and collapses. Although communities have already begun to experience the effects of *usteq*, it was not formally recognized as a *unique* hazard or formally named until it was included in the 2018 update to the [Alaska Statewide Hazard Mitigation Plan](#), which is a document required by the Federal Emergency Management Agency (FEMA) as a condition for receiving non-emergency disaster assistance. To include *usteq* in the plan, a comprehensive team of scientists, researchers, state and federal agency representatives, and community members worked together to define the hazard and describe its impact on infrastructure and communities. The goal of formally defining *usteq* as a unique, compound hazard is to gain recognition from FEMA and, as a result, hopefully enable communities to be eligible for funding to mitigate the threat it poses to community infrastructure, health, and well-being.

Recent Events

Permafrost-Impacted Nunapitchuk Home Floods Due to Heavy Rain



Interior of the flooded home in Nunapitchuk, Alaska. Source: City of Nunapitchuk.

Heavy rain the first week of February displaced one family from their home as a result of flooding in Nunapitchuk, Alaska. Unstable permafrost underlies the community of Nunapitchuk, which is located on a wetland in the Yukon-Kuskokwim Delta. The community has been experiencing infrastructure impacts from permafrost degradation, including to the home that was flooded, which has sunk considerably into the ground. Neither the City of Nunapitchuk, the Native Village of Nunapitchuk, nor the homeowner has money set aside to repair the home or secure new housing. The community has reached out to the Association of

Village Council President's, the region's housing authority, to explore what support they can provide to the family.

Locally Built Berm Protects Golovin from Flooding in Winter Storm



A recent storm in Golovin, Alaska resulted in a storm surge on the Golovnin Lagoon side of the community, shown in the photo above. Credit: Toby Anungazuk Jr.

“Things are changing. Things that are a problem now, wouldn’t have been a problem a few years ago.” – Toby Anungazuk Jr. referring to the unusually high February storm surge.

On February 11th, a strong winter storm brought high winds and high water into the coastal community of Golovin, Alaska. The storm surge, which was the highest in over two years and the highest February storm surge waters in recent memory, went right up to the compacted sand and gravel berm, which was built by the community after flooding in 2011. Without the berm, community members believe that it is likely that the downtown area of the community would have flooded, which would have impacted access to the school, health clinic, numerous homes, and other critical infrastructure. Winter storms such as this one don’t normally result in severe high water because Golovin is usually surrounded by sea ice that extends 12 miles from the bay out to Norton Sound by this time in February. This year, there is currently approximately only 8

miles of protective ice. The Golovnin Bay ice is important because it provides protection from storm surge, coastal flooding, and erosion and is crucial for winter species of fish and Ring and Bearded Seals. As the [sea ice in Western Alaska declines and becomes thinner in the future](#), coastal communities such as Golovin could become more vulnerable to winter storms.

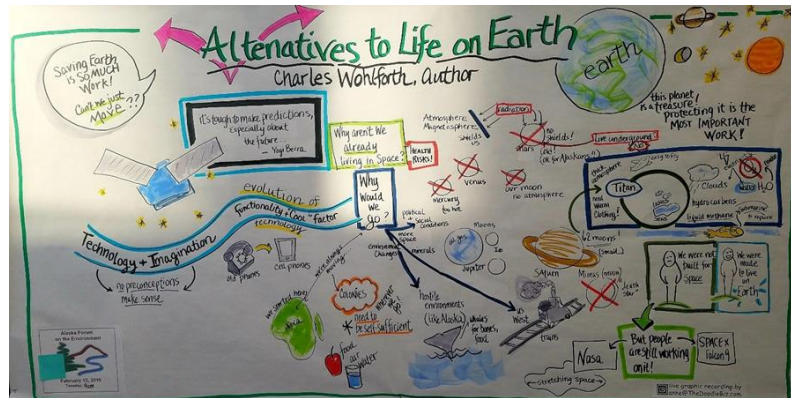
Flooding in Kotlik Causes Damage to Homes and Private Property



Flooding brought high water into Kotlik, Alaska, pictured above. Source: Village of Kotlik.

The same winter storm that resulted in a storm surge in Golovin, Alaska also produced flooding in Kotlik, Alaska in the early morning of February 12th. On the evening of February 11th, wind speeds reached 40 to 60 miles per hour in Kotlik and the water level rose between four and eight feet. Community members started to notice flooding around midnight and it continued into the early hours of February 12th. Although snow in the village prevented the community from being badly flooded, six homes suffered damage to the foundation and insulation. The Kotlik tank farm, which is an area of oil or gas storage tanks, and some private property (boats and snow machines) also had damage. The Village of Kotlik has sent information and photos of the damage to the State Emergency Operations Center.

2019 Alaska Forum on the Environment (AFE) Conference



The Alaska Forum on the Environment (AFE), a 501(c)3 nonprofit organization, celebrated its 21st year of hosting its annual conference February 11 – 15, 2019 at the Dena'ina Center in Anchorage, Alaska. Touted as Alaska's premier training event, the AFE is a statewide gathering of environmental professionals from government agencies, nonprofits and for profit businesses, community leaders, Alaskan youth, conservationists, biologists, and community elders. Attendees of the event have the opportunity to engage in environmental networking and attend trainings to benefit their organizations and communities. The 2019 conference brought in keynote speakers that ranged from state and federal agency leaders to scientists, professors, and authors, and covered topics such as the Exxon Valdez oil spill – 30 years later, planning for climate change, and community-based monitoring models. Highlighted below are resources that may prove useful for communities in Alaska experiencing environmental threats.

- **Sense of Place:** Environmental threats impact communities in more ways than one. Whether you are experiencing threats to critical infrastructure or a subsistence food system, these

changes are taking place at home. The concept of home is one that Alaskans hold near and dear to their hearts. Our connection to the land and cultural ways of living are a sense of pride, strength, and resiliency. Gathering the voices of community members, both young and old, to capture your sense of place – and how it is changing – can be a powerful practice. At AFE, youth from the Kodiak Refuge Youth Conservation Corps shared their own sense of place poems and led the audience in a sense of place poetry writing exercise. For more on the national movement of sharing who you are and where you are from, click [here](#).

- **Local Observations:** Many sessions at AFE included the concepts of community-based monitoring and local environmental data collection. Engaging local community members in monitoring and data collection practices can contribute to baseline data where it is otherwise scarce and help to merge scientific data with traditional knowledge. Examples of community-based monitoring programs in Alaska include ANTHC's [LEO Network](#), Yukon River Inter-Tribal Watershed Council's [Indigenous Observation Network](#) (ION), and [BeringWatch](#).
- **Uncovering Creative Resources:** As the need for climate change mitigation and adaptation strategies increase across Alaska, so too does the need for being creative with the resources we have at hand to make progress in our communities. The United States Department of Agriculture (USDA) spoke to this at AFE. The agencies within USDA range from Rural Development to the National Agricultural Library, and the Forest Service to the National Institute of Food and Agriculture (NIFA). A broad spectrum of resources is available through these agencies, including grant funding for conservation projects. Learn more about the USDA's Northwest Climate Hub [here](#) and contact Holly Prendeville, Coordinator, at hollyrprendeville@fs.fed.us for assistance in navigating available resources.

Oscarville Traditional Council Releases Climate Adaptation Plan

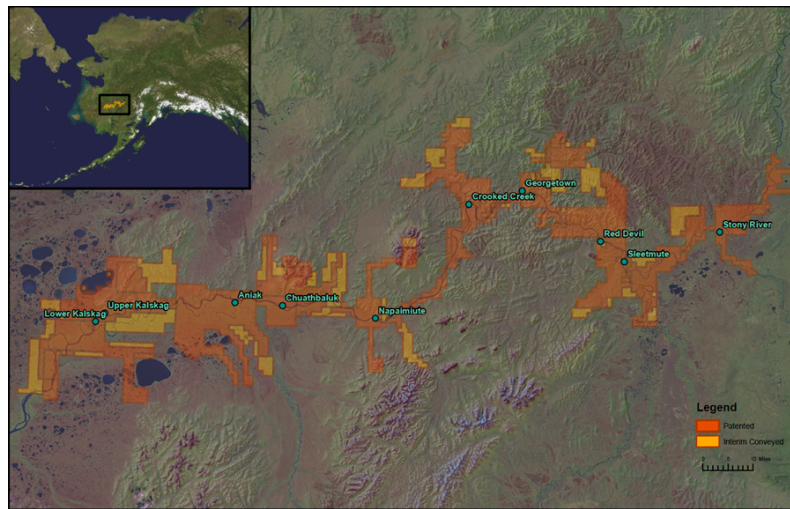
The [Oscarville Tribal Climate Adaptation Plan](#), funded by the Bureau of Indian Affairs (BIA), is the first adaptation plan created

using a new approach called the “Holistic Approach to Sustainable Northern Communities.” The plan, which was prepared by the community of Oscarville, ANTHC, and Cold Climate Housing Research Center (CCHRC), aims to bridge the gap between indigenous knowledge and Western science. The holistic approach was developed by a group of rural Alaskan leaders, local organizations, and state and federal agencies to look at all of the facets of a community in order to address community needs and priorities. A collaborative partnership identified and prioritized community needs, available resources, and created an action plan for Oscarville. In doing so, the holistic approach shows the interconnectivity of each sector and how it impacts the community as a whole. The community-led framework outlined in this plan can be applied to other communities.



A holistic approach to adaptation planning recognizes the interconnectivity of various sectors that affect community well-being. Source: Oscarville Tribal Climate Adaptation Plan

Middle Kuskokwim Adaptation Plan Funded by the Bureau of Indian Affairs (BIA)



The BIA funded Middle Kuskokwim Adaptation Plan will be a tool for ten communities in the region, marked in the map above. Source: The Kuskokwim Corporation.

The Georgetown Tribal council, a federally-recognized Tribal Government for the Native Village of Georgetown, has been awarded funding by the BIA to create a Middle Kuskokwim Adaptation Plan. The project will explore the scope of environmental change occurring around the Middle Kuskokwim region of Alaska, and describe the impact on the region. The plan will serve as a tool for ten communities in the region (Georgetown, Lower Kalskag, Upper Kalskag, Aniak, Chuathbaluk, Napaimute, Crooked Creek, Sleetmute, Stony River, and Red Devil) by providing actions to proactively address climate change impacts.

Newtok Relocation Quarterly Update



In October 2018, 40 feet of land was lost in 10 days to aggressive fall storms in Newtok, Alaska. Source: Romy Cadiente.

ANTHC has released the Newtok Relocation Quarterly Update Newsletter, which provides information on the progress, key milestones, and next steps of the community of Newtok's relocation to Mertarvik. The latest update includes information on recent erosion in Newtok, accomplishments in Mertarvik, and a story from a Newtok high school student about the changing landscape in her community. Read an excerpt below and the full story on the [State of Alaska website](#).

"How I see Newtok in my eyes is a village inside a small island. This is my home, and every single year the land slowly fades away, feet by feet. When I was young, the land was further away from my house than it is today. When the land was still there, we used to play around, and we would also pick raspberries and some blueberries before it all fell to the Ningliq River. This generation that is growing up, would never know how it used to look, but they would know by stories that are being told now."

Click here to contact CETC to feature a recent event in
your community!

Community Profile: Golovin



Aerial view of Golovin, Alaska, with the downtown area marked, which is at a lower elevation and is most vulnerable to storm surge flooding. Credit: State of Alaska.

Problem:

Golovin, Alaska is a rural community of 172 people located on a point of land between Golovnin Bay and Golovnin Lagoon on the Seward Peninsula. Its coastal location makes the community especially vulnerable to strong fall and winter storms, ivus (ice surges), and flooding. Storm surge flooding happens almost every year. According to the U.S. Army Corps of Engineers, Golovin experiences an average annual rate of erosion of two to four feet along 2,400 linear feet of shoreline. Past erosion events have caused damage to downtown roads, the Fish Plant, the old landfill, and downtown homes. The lower portion of the community is the most vulnerable to erosion and/or flooding, including homes, the school, post office, clinic, and church. In addition to imminent infrastructure impacts, community members are also concerned about the impact of declining sea ice on their subsistence way of life. Community members rely on sea ice in order to safely hunt and fish in the winter, which is a traditionally important practice that provides nutritious food in a place where importing food can be prohibitively expensive.

Solution:

In order to respond to the threats of flooding and erosion, the community is increasingly looking toward the higher land on the

bluff as a location to build new infrastructure and move infrastructure away from hazards. Currently, the community does not have a plan or timeline for when homes would be relocated to a higher elevation. In order to protect the homes in the downtown area in the near term, the community is interested in constructing a larger coastal berm. The berm would be located on the opposite side of the community from the smaller berm that the community constructed in 2011 to protect public infrastructure. The community has discussed the berm in joint meetings with the City of Golovin, the Chinik Eskimo Community, and the Golovin Native Corporation.

Solutions Spotlight: Carol Oliver



Carol Oliver (bottom right, with her granddaughters) works to address flooding and erosion issues in her community of Golovin, Alaska. Source: Carol Oliver.

Carol Oliver has been with the Chinik Eskimo Community's Indian General Assistance Program (IGAP) for a few years and works as the Program Assistant. In her position, Carol works to improve the environmental health of her community and is active in efforts to combat the threats of erosion and flooding.

Born and raised in Golovin, Alaska, Carol has a deep connection and love for the land and all that it provides. She has seen major changes to her environment firsthand. Declining sea ice, increased erosion and flooding, and changes to subsistence resource

distribution and availability. The transformations she has experienced are real and can be frightening. According to Carol, too often people from faraway places hear about the problems communities like hers are facing and have their own opinions about how the community should respond without coming to the village, listening to the community, and seeing the problem firsthand. She emphasized that other people should “look around before you act.”

For Carol, finding funding is the biggest challenge her community faces in responding to their environmental threats. Securing the necessary studies, assessments, and permits to mitigate the erosion and flooding threat is a costly and long process, requiring time and technical expertise. Despite the challenges, Carol has a vision for Golovin – a safe and resilient community with a thriving local economy, upgraded infrastructure, clean water, and protection from flooding and erosion.

Current Funding Opportunities

Indian Community Development Block Grant (ICDBG)

The U.S. Department of Housing and Urban Development (HUD) has re-opened this opportunity to address infrastructure impacts from environmental hazards. The ICDBG program can provide funding for housing, community facilities, and economic development.

- Up to \$600,000 is available per community
- Eligibility: Tribal governments
- Deadline: March 20th, 2019
- More information: To read the Notice of Funding Availability (NOFA), click [here](#). If your community would like assistance with an application, contact the CETC at etc@anthc.org or 907-729-4521.

Resources

Training: Grant Writing Training

Alaska Project Solutions, Inc. (APSI) will be hosting a 3-day training on grant writing for Alaskan Tribes and Tribal organizations. The training will include: pre-planning processes, understanding the grant guidance, creating a compelling narrative, building a realistic project budget, and forms and scoring criteria. The training will take place March 20-22, 2019 in Anchorage, Alaska, at the Hyatt House Hotel. The workshop fee is \$1,200 per person and the registration deadline is February 28th, 2019. To register or for more information, contact joanh@gci.net or 907-223-3086.

Webinar: Improving Communication of Coastal Flood Warnings to Alaska Communities

The National Weather Service (NWS) will present the webinar "Improving Communication of Coastal Flood Warnings to Alaska Communities" at 11 am on March 13th. The NWS will present on how it has been collaborating with state, regional, local, and tribal organizations to improve impact-based decision support to communities before and during coastal storms. It will also highlight recent successes in improving two-way communication and warnings to western Alaska communities during coastal flood events. Register [here](#).

Survey: Share your health concerns to help inform Health Alaskans 2030.

Healthy Alaskans, a partnership between the Department of Health and Social Services and ANTHC, is asking Alaskans about their health concerns in a survey that will help inform Alaska's next health improvement plan, Health Alaskans 2030. This is a great opportunity to share what health issues are most important to you, your family, and your community. Take the survey [here](#).

News Roundup

[With Governor's Award, Ivanoff Recognized as Leader Among Alaska Native Writers:](#) Laureli Ivanoff, an Alaska Native writer from Unalakleet, Alaska, has been honored with a Governor's Arts and Humanities Award for her work illustrating a side of life in rural Alaska rarely seen in mainstream media. Ivanoff writes stories of home, of place, and of connection. Her piece, "[The Bearded Seal](#)

[My Son May Never Hunt](#)", is about the traditions threatened by climate change in her community and was published in the New York Times.

[40 to 50 Students Plan to Attend School in Mertarvik by October:](#)

By next fall, as many as 21 homes will have been built in Mertarvik, Alaska the community of Newtok, Alaska's relocation site. Forty to fifty students will attend classes at the Mertarvik Evacuation Center, which will be the temporary school until a new one can be built.

[How Arctic Temperatures Threaten Infrastructure:](#) Across the

Arctic region, about [35 million people live in a permafrost zone](#).

This article details the threat to the region's infrastructure as global temperatures rise and permafrost melts, and the uncertain future communities face as a result.

[How a Shorter Sea Ice Season is Changing Life in the Arctic:](#) The

coastline in Utqiagvik, Alaska, formerly Barrow, used to be lined with sea ice for nearly the whole year. Now, the sea ice season is growing shorter and shorter, forcing locals to change their traditional subsistence hunting practices.

About the Center for Environmentally Threatened Communities

The Center was established with a Denali Commission grant to the Alaska Native Tribal Health Consortium and supports rural Alaska communities experiencing infrastructure impacts associated with environmental threats such as flooding, erosion, and melting permafrost.

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